1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier
Product Number  586
Product Name  Trace Metals
Synonyms  None

Recommended use of the chemical and restrictions on use
Recommended Use  Laboratory use only
Uses advised against  No information available

Details of the supplier of the safety data sheet
Supplier  ERA a Waters Company
Supplier Address  16341 Table Mountain Parkway, Golden, CO 80403 USA
Non-Emergency Telephone Number  +1-303-431-8454
Supplier Email  sdsinfo@waters.com
Emergency telephone number
Company Emergency Phone
Number  In case of EMERGENCY call CHEMTREC Day or Night
Within USA and Canada: 800-424-9300
International Call Collect: +1-703-527-3887

2. HAZARDS IDENTIFICATION

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

<table>
<thead>
<tr>
<th>Skin corrosion/irritation</th>
<th>Category 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

GHS Label elements, including precautionary statements

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Danger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard Statements</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Clear, colorless</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
</tbody>
</table>

Precautionary Statements - Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response
Immediately call a POISON CENTER or doctor/physician
Specific treatment (see supplemental first aid instructions on this label)
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician

Skin
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse

Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician

Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable

Unknown Toxicity
0 % of the mixture consists of ingredient(s) of unknown toxicity

Other information

No information available

Interactions with Other Chemicals
No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Note: only the components contributing to the product's GHS hazard classification are listed in this section.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>7697-37-2</td>
<td>2</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First aid measures

General Advice
Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Eye contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.

Skin contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Seek immediate medical attention/advice.

Inhalation
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, (trained personnel should) give oxygen. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

Ingestion
Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Self-protection of the first aider
Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects
Burning sensation.

Indication of any immediate medical attention and special treatment needed
Notes to Physician

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
CO2 (except for Cyanides), dry chemical, dry sand, alcohol-resistant foam. Water spray, fog or alcohol-resistant foam. Move containers from fire area if you can do it without risk. Use water spray or fog; do not use straight streams. Dike fire control water for later disposal; do not scatter the material.

Unsuitable Extinguishing Media
Note: Most foams will react with the material and release corrosive/toxic gases.

Specific hazards arising from the chemical
Vapors may accumulate in confined areas (basement, tanks, hopper/tank cars, etc.). Substance will react with water (some violently), releasing corrosive and/or toxic gases. Reaction with water may generate much heat which will increase the concentration of fumes in the air. Containers may explode when heated or if contaminated with water.

Uniform Fire Code
Corrosive: Other--Liquid

Hazardous Combustion Products
Carbon oxides.

Explosion Data
Sensitivity to Mechanical Impact
No.
Sensitivity to Static Discharge
No.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if you can do it without risk.

Other Information
Environmental precautions
Do not get water inside containers.

Environmental precautions
Prevent entry into waterways, sewers, basements or confined areas. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.

Methods and material for containment and cleaning up

Methods for containment
A vapor suppressing foam may be used to reduce vapors. Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.

Methods for cleaning up
Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.
7. HANDLING AND STORAGE

Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Use only with adequate ventilation and in closed systems. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible Products

8. EXPOSURE CONTROLSPERSONAL PROTECTION

Control parameters

Exposure Guidelines

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>STEL: 4 ppm, TWA: 2 ppm</td>
<td>TWA: 2 ppm, TWA: 5 mg/m³ (vacated)</td>
<td>IDLH: 25 ppm, TWA: 2 ppm, TWA: 5 mg/m³ (vacated)</td>
</tr>
<tr>
<td>7697-37-2</td>
<td></td>
<td>STEL: 4 ppm (vacated)</td>
<td>STEL: 4 ppm</td>
</tr>
</tbody>
</table>

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value
OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits
NIOSH IDLH: Immediately Dangerous to Life or Health

Appropriate engineering controls

Engineering Measures
- Showers
- Eyewash stations
- Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection
- Face protection shield.

Skin and body protection
- Wear protective gloves and protective clothing. Long sleeved clothing. Chemical resistant apron. ImperVIOUS gloves.

Respiratory protection
- No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures
- Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Take off contaminated clothing and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear, colorless</td>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>Color</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>&lt;= 2</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Melting / freezing point</td>
<td>no data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>no data available</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Flash Point</td>
<td>no data available</td>
<td>None known</td>
<td></td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity

Chemical stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Hazardous Polymerization
Hazardous polymerization does not occur.

Conditions to avoid
Exposure to air or moisture over prolonged periods.

Incompatible materials

Hazardous Decomposition Products
Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation
Specific test data for the substance or mixture is not available. Corrosive by inhalation.
(based on components). Inhalation of corrosive fumes/gases may cause coughing, choking,
headache, dizziness, and weakness for several hours. Pulmonary edema may occur with
tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and
increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs.
Pulmonary edema can be fatal. May cause irritation of respiratory tract.

Eye contact
Specific test data for the substance or mixture is not available. Causes burns. (based on
components). Corrosive to the eyes and may cause severe damage including blindness.
Causes serious eye damage. May cause irreversible damage to eyes.

Skin contact
Specific test data for the substance or mixture is not available. May cause irritation.
Prolonged contact may cause redness and irritation.

Ingestion
Specific test data for the substance or mixture is not available. Causes burns. (based on
components). Ingestion causes burns of the upper digestive and respiratory tracts. May
cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

### Component Information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>-</td>
<td>-</td>
<td>130 mg/m³ (Rat) 4 h = 67 ppm (Rat) 4 h</td>
</tr>
</tbody>
</table>

### Information on toxicological effects

**Symptoms**  
Erythema (skin redness). Burning. May cause blindness. Coughing and/or wheezing.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Sensitization**  
No information available.

**Mutagenic Effects**  
No information available.

**Carcinogenicity**  
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td></td>
<td>Group 1</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>7697-37-2</td>
<td></td>
<td>Group 2A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**IARC** (International Agency for Research on Cancer)  
Group 2A - Probably Carcinogenic to Humans

**OSHA** (Occupational Safety and Health Administration of the US Department of Labor)  
X - Present

**Reproductive toxicity**  
No information available.

**STOT - single exposure**  
No information available.

**STOT - repeated exposure**  
No information available.

**Chronic toxicity**  
No known effect based on information supplied. Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Contains a known or suspected carcinogen.

**Target Organ Effects**  

**Aspiration Hazard**  
No information available.

### Numerical measures of toxicity

**Product Information**

The following values are calculated based on chapter 3.1 of the GHS document

Not applicable

### 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

Harmful to aquatic life.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Toxicity to Algae</th>
<th>Toxicity to Fish</th>
<th>Toxicity to Microorganisms</th>
<th>Daphnia Magna (Water Flea)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td></td>
<td>96 h LC50: = 72 mg/L (Gambusia affinis)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7697-37-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Persistence and Degradability**  
No information available.

**Bioaccumulation**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>-2.3</td>
</tr>
<tr>
<td>7697-37-2</td>
<td></td>
</tr>
</tbody>
</table>

**Other adverse effects**

No information available.
13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal methods
This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261).

Contaminated Packaging
Dispose of contents/containers in accordance with local regulations.

US EPA Waste Number
D002

California Hazardous Waste Codes
791
This product contains one or more substances that are listed with the State of California as a hazardous waste.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>California Hazardous Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>Toxic</td>
</tr>
<tr>
<td></td>
<td>Corrosive</td>
</tr>
<tr>
<td>7697-37-2</td>
<td>Ignitable</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT

UN-No.        UN2031
Proper Shipping Name NITRIC ACID
Hazard Class     8
Subsidiary class 5.1
Packing Group   II
Description     UN2031, NITRIC ACID, 8 (5.1), II
Emergency Response Guide Number 157

TDG

UN-No.        UN2031
Proper Shipping Name NITRIC ACID
Hazard Class     8
Packing Group   II
Description     UN2031, NITRIC ACID, 8, II

MEX

UN-No.        UN2031
Proper Shipping Name NITRIC ACID
Hazard Class     8
Packing Group   II
Description     UN2031, NITRIC ACID, 8 (5.1), II

ICAO

UN-No.        UN2031
Proper Shipping Name NITRIC ACID
Hazard Class     8
Packing Group   II
Description     UN2031, NITRIC ACID, 8, II

IATA

UN-No.        UN2031
Proper Shipping Name NITRIC ACID
Hazard Class     8
Packing Group   II
Special Provisions None
Description     UN2031, NITRIC ACID, 8, II

IMDG/IMO

UN-No.        UN2031
Proper Shipping Name  NITRIC ACID
Hazard Class  8
Subsidiary class  5.1
Packing Group  II
EmS-No.  F-A, S-Q
Special Provisions  None
Marine Pollutant  Not applicable
Description  UN2031, NITRIC ACID, 8 (5.1), II

RID
UN-No.  UN2031
Proper Shipping Name  NITRIC ACID
Hazard Class  8
Packing Group  II
Classification code  CO1
Special Provisions  None
Description  UN2031, NITRIC ACID, ENVIRONMENTALLY HAZARDOUS, 8 (5.1), II
ADR/RID-Labels  5.1

ADR
UN-No.  UN2031
Proper Shipping Name  NITRIC ACID
Hazard Class  8
Packing Group  II
Classification code  CO1
Tunnel restriction code  (E)
Special Provisions  None
Description  UN2031, NITRIC ACID, ENVIRONMENTALLY HAZARDOUS, 8 (5.1), II
ADR/RID-Labels  8  5.1

ADN
UN-No.  UN2031
Proper Shipping Name  NITRIC ACID
Hazard Class  8
Packing Group  II
Classification code  CO1
Description  UN2031, NITRIC ACID, ENVIRONMENTALLY HAZARDOUS, 8 (5.1), II
Hazard Labels  8 + 5.1
Limited Quantity  1 L

15. REGULATORY INFORMATION

International Inventories
TSCA  Complies
DSL  All components are listed either on the DSL or NDSL.
ENCS  Contact supplier for inventory compliance status
IECSC  -
KECL  Contact supplier for inventory compliance status
PICCS  Contact supplier for inventory compliance status
AICS  Contact supplier for inventory compliance status

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations
SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid - 7697-37-2</td>
<td>7697-37-2</td>
<td>2</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**SARA 311/312 Hazard Categories**
- Acute Health Hazard: Yes
- Chronic Health Hazard: No
- Fire Hazard: No
- Sudden release of pressure hazard: No
- Reactive Hazard: No

**CWA (Clean Water Act)**
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>1000 lb</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**CERCLA**
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Hazardous Substances RQs</th>
<th>Extremely Hazardous Substances RQs</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>1000 lb</td>
<td>1000 lb</td>
<td>RQ 1000 lb final RQ</td>
</tr>
</tbody>
</table>

**US State Regulations**

- **California Proposition 65**
  This product does not contain any Proposition 65 chemicals.

- **U.S. State Right-to-Know Regulations**

**International Regulations**

- **Mexico**
  National occupational exposure limits

<table>
<thead>
<tr>
<th>Component</th>
<th>Carcinogen Status</th>
<th>Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td></td>
<td>Mexico: TWA 2 ppm</td>
</tr>
<tr>
<td>7697-37-2 (2)</td>
<td></td>
<td>Mexico: TWA 5 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mexico: STEL 4 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mexico: STEL 10 mg/m³</td>
</tr>
</tbody>
</table>

Mexico - Occupational Exposure Limits - Carcinogens

**Canada**

WHMIS Hazard Class
Not determined

### 16. OTHER INFORMATION

**NFPA**

- Health Hazards: 3
- Flammability: 0
- Instability: 0
- Physical and Chemical Hazards - Personal Protection: X

**HMIS**

- Health Hazards: 3
- Flammability: 0
- Physical Hazard: 0

**Prepared By**

Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

**Revision Date**
09-Nov-2015

**Revision Note**
No information available
Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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End of Safety Data Sheet